

Application No. 10/664,718
Amendment Dated September 7, 2004
Reply to Office Action of May 6, 2004

REMARKS/ARGUMENTS

By this Amendment, claims 2,3 and 6 are canceled, and claims 1, 4-5, 7-11 and 13-14 are amended. Claims 1, 4-5 and 7-19 are pending.

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

Support for the claim amendments is apparent in the original disclosure. Claim 1 comprises the features of original claims 1, 2, 3 and 6. Claims 2, 3 and 6 have accordingly been canceled. Furthermore, amended claim 1 contains a clarification with regard to the position of the second deflection stage based on the specification teachings at page 6, lines 8-17, as well as a clarification of the exit aperture based on the specification teachings at page 4, lines 27-32. The other claims are amended accordingly. In addition, claim 14 has been made dependent from claim 1.

Rejection under 35 U.S.C. § 112

The indefiniteness rejection of claim 2 under 35 U.S.C. § 112, second paragraph, is obviated by the cancellation of claim 2. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection under 35 U.S.C. § 102

Claims 1-3, 5-9 and 14-16 stand rejected under 35 U.S.C. § 102(a) and (e) as allegedly being anticipated by U.S. Patent No. 6,576,908 to Winkler et al. This rejection is respectfully traversed.

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Winkler et al. fails to identically meet all the features of the invention of base claim 1 and the claims dependent therefrom for at least the following reasons.

Winkler et al. discloses an electron source with an electron emitter, some deflection stages and some apertures. However, Winkler et al. does not disclose the provision of the second deflection stage as presently claimed wherein the second deflection stage is arranged closer to the sample than to the first deflection stage, and a casing extending from the first to the second deflection stage. Furthermore, Winkler et al. does not disclose the provision of an exit aperture representing a barrier between a sample and the casing.

More specifically, if the deflection stage 12 of Winkler et al. (see Fig. 3) is considered as the second deflection stage, this deflection stage would not be arranged closed to any sample. On the other hand, if the third deflection stage 13 of Winkler et al. (see Figs. 4/1) were considered the second deflection stage, Winkler et al. would be silent with regard to the casing extending from the first to the second deflection stage.

With regard to the exit aperture, it is clear that Winkler et al. does not disclose such a component as in the conventional beam column any sample (which in fact is not shown) would be arranged at the same pressure as the deflection stage 13.

Accordingly, reconsideration and withdrawal of the anticipation rejection are respectfully requested.

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Rejections under 35 U.S.C. § 103

Winkler et al., the primary reference applied in all of the obviousness rejections, discloses a device, which is designed for shaping and aligning the particle beam through a multiple aperture. In fact, the beam is not directed towards a sample but towards the objective lens (reference no. 10). As the conventional device represents the column of an electron microscope system, there would be no suggestion to amend this column according to the aforementioned novel limitations of claim 1.

The problem of beam orientation correction as solved by the present second deflection stage is not a problem occurring in the conventional electron microscope system. Thus, a person of ordinary skill in the art at the time of the invention would have lacked reasonable motivation to increase the distance between the deflection stages in the prior art system. On the contrary, the general trend in the design of electron microscope columns is directed to reduced sizes and improved compactness.

The combined consideration of the Winkler et al. reference and the remaining applied documents does not lead to the subject matter of claim 1 as the remaining documents represent technological background with regard to electron beam manipulation only.

The several obviousness rejections are now addressed in turn.

Claims 4 and 17-18 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Winkler et al. in view of U.S. Patent No. 5,466,933 to Bryson III et al. (Bryson). This rejection is respectfully traversed.

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Winkler et al. fails to identically meet all the features of the claimed invention for the reasons noted above. The teachings of Bryson fail to remedy the deficiencies of Winkler et al. Bryson does not even disclose an electron source with an electron emitter, and therefore does not suggest modifying the teachings of Winkler et al. to, e.g., arrange a second deflection stage closer to the sample than to the first deflection stage, and to provide a casing extending from the first to the second deflection stage.

Accordingly, reconsideration and withdrawal of the obviousness rejection of claims 4, 17 and 18 are respectfully requested.

Claims 11 and 12 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Winkler et al. in view of Bryson. This rejection is respectfully traversed.

Regardless of whether patentable weight should be accorded the recitation of a RHEED system in the preamble of claims 11 and 12, the proposed combination of reference teachings fails to meet all the features of the claimed invention for at least the same reasons that the same combined reference teachings fail to meet all the features of claims 4, 17 and 18.

Accordingly, reconsideration and withdrawal of the obviousness rejection of claims 11 and 12 are respectfully requested.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Winkler et al. in view of U.S. Patent No. 4,952,814 to Huntzinger. This rejection is respectfully traversed.

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Winkler et al. fails to identically meet all the features of the claimed invention for the reasons noted above. The teachings of Huntzinger fail to remedy the deficiencies of Winkler et al. Huntzinger does not even disclose an electron source with an electron emitter and is silent with regard to the deflection stages, and therefore does not suggest modifying the teachings of Winkler et al. to, e.g., arrange a second deflection stage closer to the sample than to the first deflection stage, and to provide a casing extending from the first to the second deflection stage.

Accordingly, reconsideration and withdrawal of the obviousness rejection of claim 10 are respectfully requested.

Claims 13 and 19 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Winkler et al. in view of Huntzinger, U.S. Patent No. 5,235,239 to Jacob et al. and Bryson. This rejection is respectfully traversed.

The combined teachings of Winkler, Huntzinger and Bryson fail to disclose all the limitations of base claim 1, including a second deflection stage arranged closer to the sample than to the first deflection stage, and a casing extending from the first to the second deflection stage. Jacob et al. fails to remedy these deficiencies of the other references. Thus, the proposed combination of reference teachings fails to meet all the features of the claimed invention.

Accordingly, reconsideration and withdrawal of the obviousness rejection of claims 13 and 19 are respectfully requested.

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For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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